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0300 #3

Docket #: SVL920010055US1 PATENT

OIPE JC24 JUL 09 2001 PATENT & TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: **Shyh-Mei F. Ho, et al.**

Application No.: **09/849,813** Group No.: **Unknown**

Filed: **May 4, 2001** Examiner: **Unknown**

Title: **COBOL METAMODEL**

LETTER TRANSMITTING FORMAL DRAWINGS

Commissioner for Patents
Washington, D.C. 20231

Attn: Official Draftsman

Dear Sir:

Attached please find thirteen sheets (13) of formal patent drawings for above-referenced application which was filed with informal drawings on May 4, 2001.

Respectfully Submitted,

CERTIFICATE OF MAILING
I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to the Commissioner for Patents, Washington, D.C. 20231.

Date of deposit: July 5, 2001

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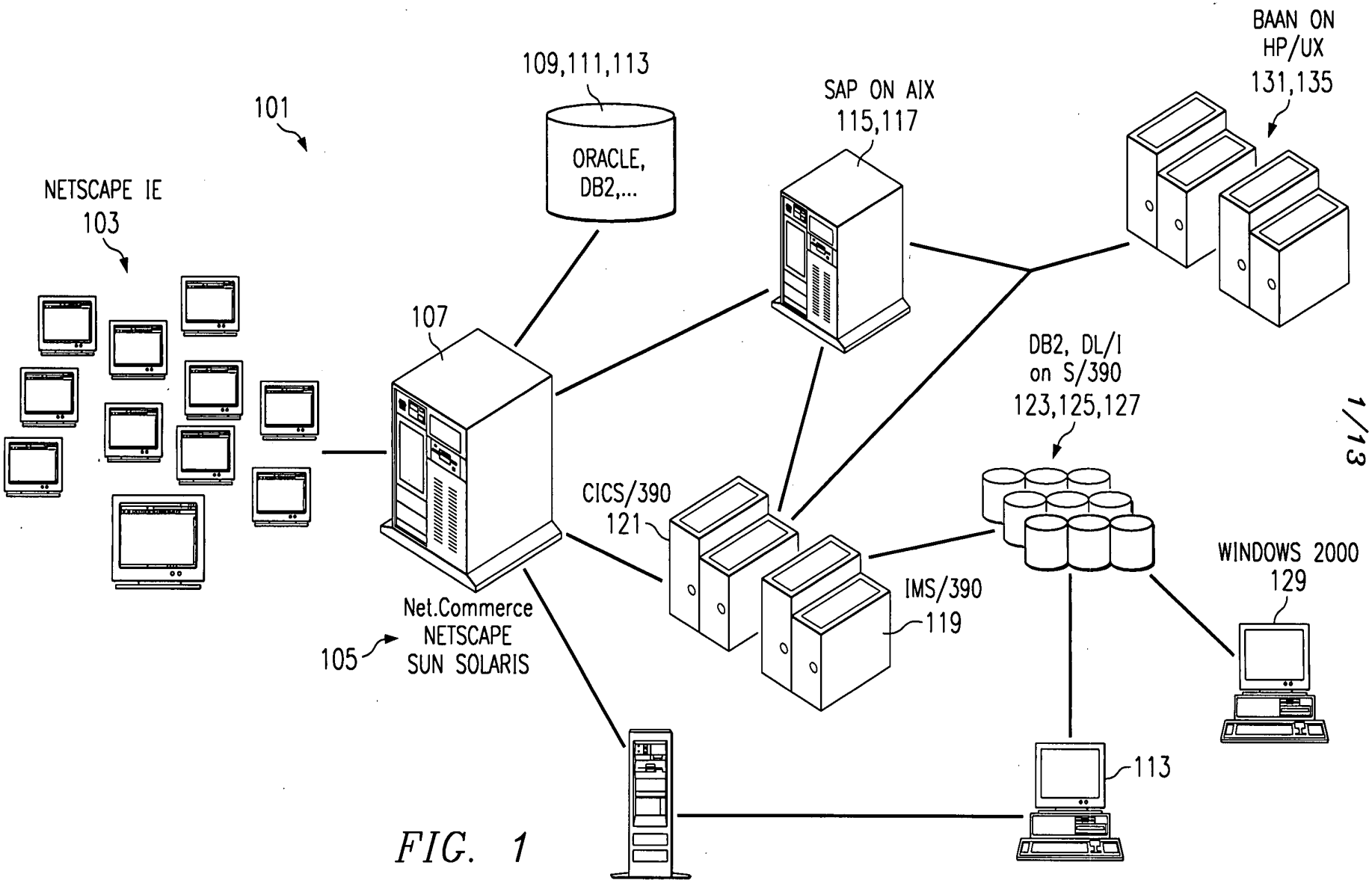


FIG. 1

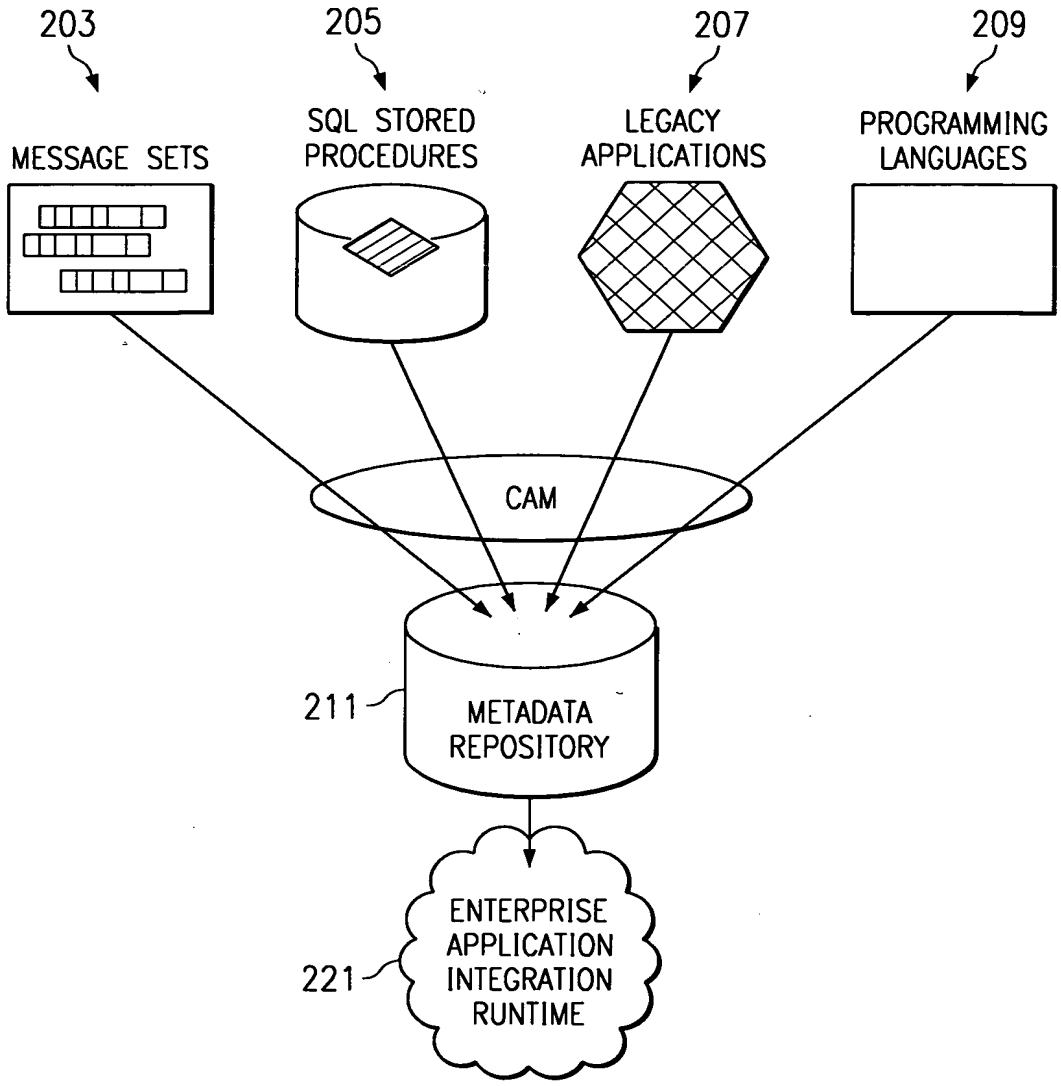

203
205
207
209
MESSAGE SETS
SQL STORED PROCEDURES
LEGACY APPLICATIONS
PROGRAMMING LANGUAGES
CAM
211
METADATA REPOSITORY
221
ENTERPRISE APPLICATION INTEGRATION RUNTIME

FIG. 2

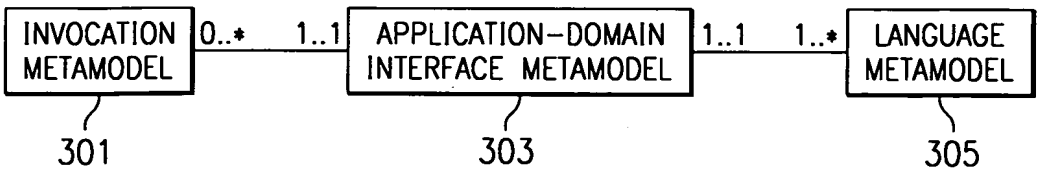

INVOCATION METAMODEL
0..*
1..1
APPLICATION-DOMAIN INTERFACE METAMODEL
1..1
1..*
LANGUAGE METAMODEL
301
303
305

FIG. 3

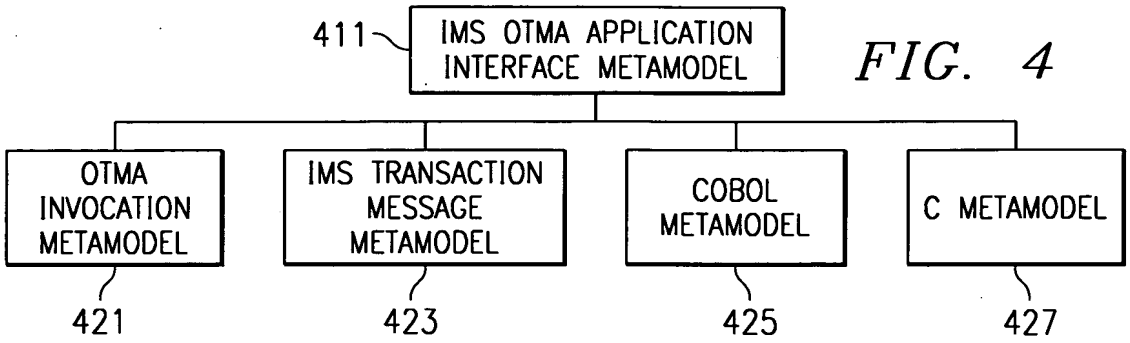


FIG. 4

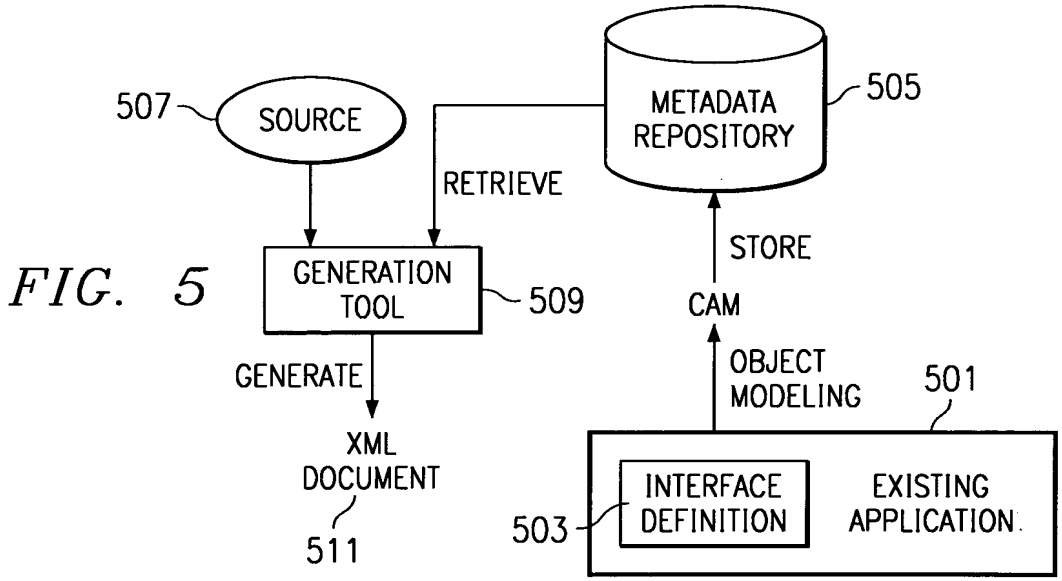


FIG. 5

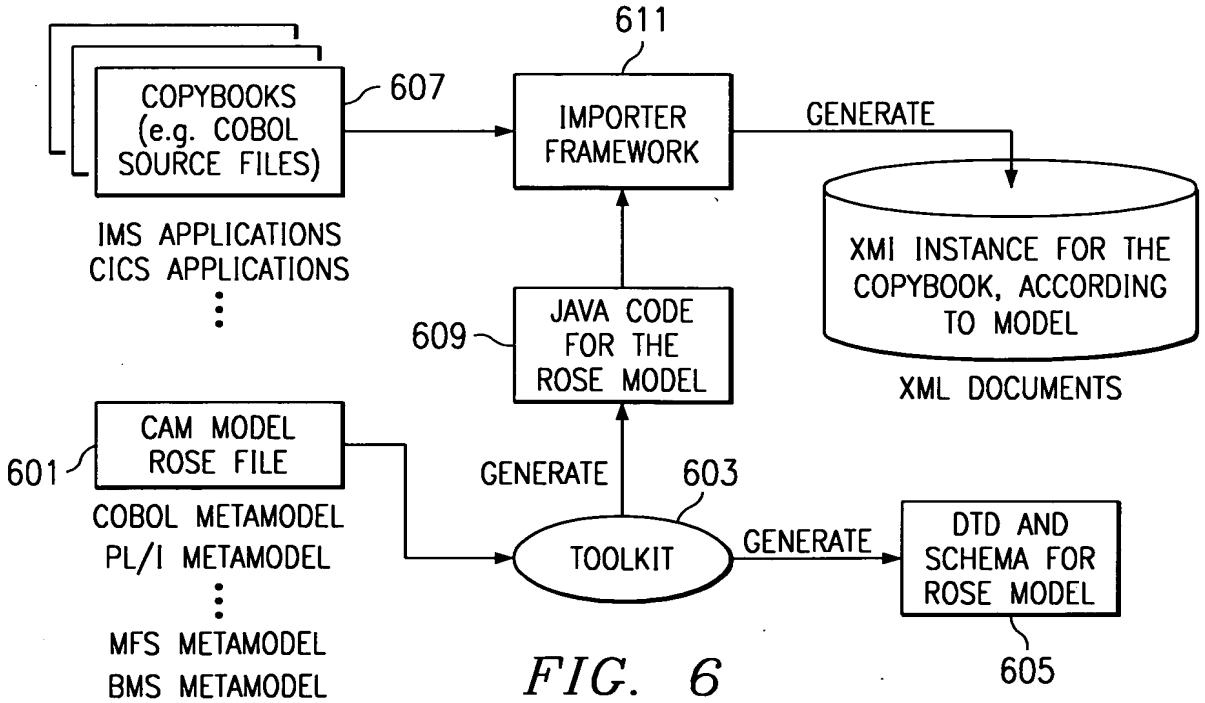


FIG. 6

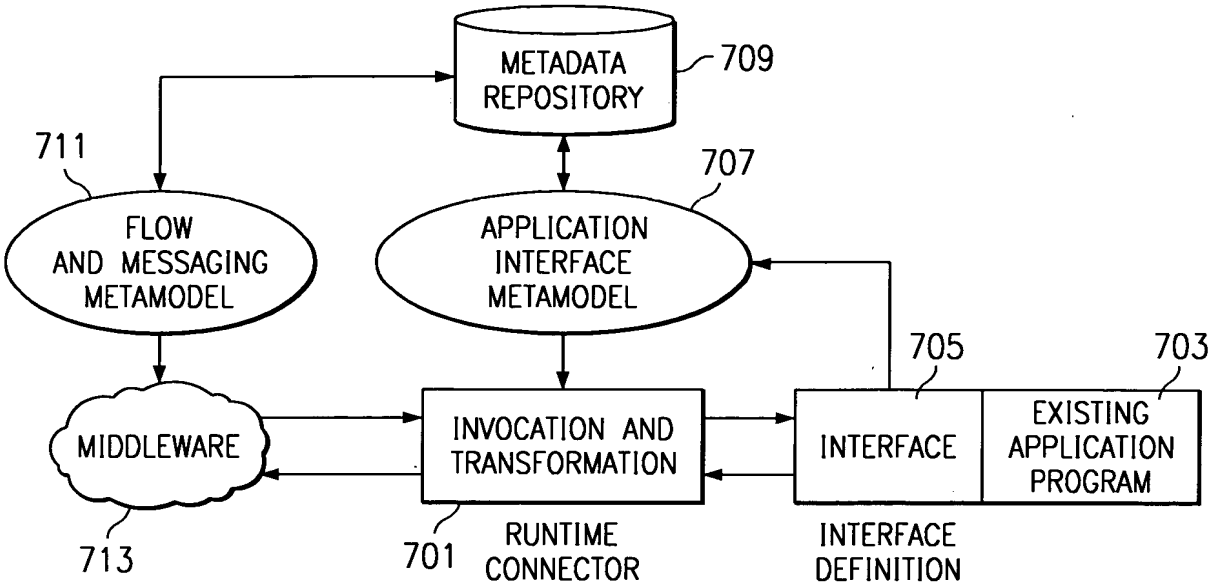

METADATA REPOSITORY
709
711
707
FLOW AND MESSAGING METAMODEL
APPLICATION INTERFACE METAMODEL
705
703
MIDDLEWARE
INVOCATION AND TRANSFORMATION
INTERFACE
EXISTING APPLICATION PROGRAM
713
701
RUNTIME CONNECTOR
INTERFACE DEFINITION

FIG. 7

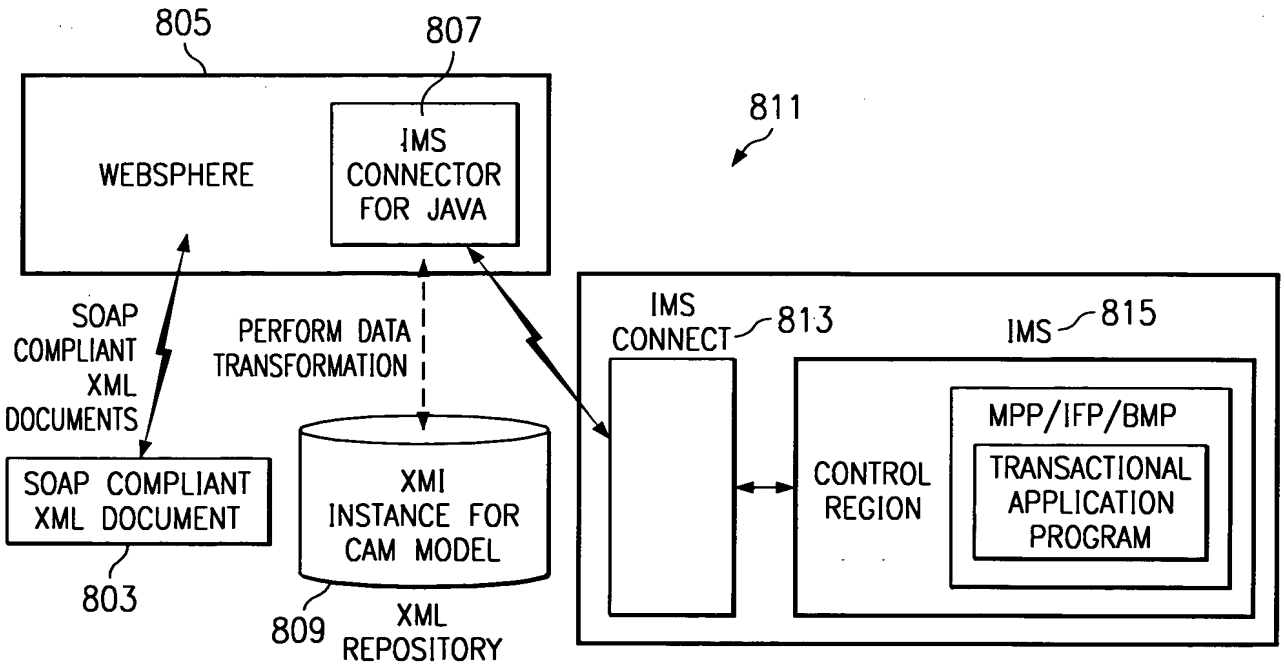

805
807
811
WEBSPHERE
IMS CONNECTOR FOR JAVA
SOAP COMPLIANT XML DOCUMENTS
PERFORM DATA TRANSFORMATION
IMS CONNECT
813
IMS
815
MPP/IFP/BMP
CONTROL REGION
TRANSACTIONAL APPLICATION PROGRAM
SOAP COMPLIANT XML DOCUMENT
XMI INSTANCE FOR CAM MODEL
803
809
XML REPOSITORY

FIG. 8

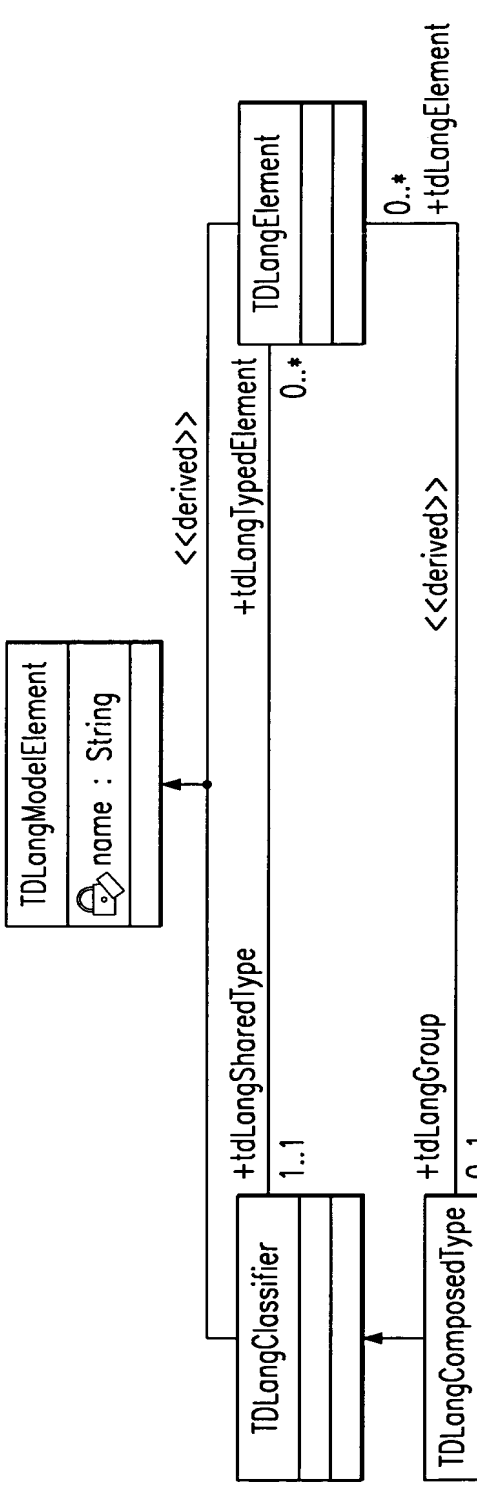

TDLangModelElement
name : String
<<derived>>
TDLangClassifier
TDLangElement
+tdLangSharedType
1..1
+tdLangTypedElement
0..*
0..*
+tdLangElement
<<derived>>
+tdLangGroup
0..1
TDLangComposedType

FIG. 9

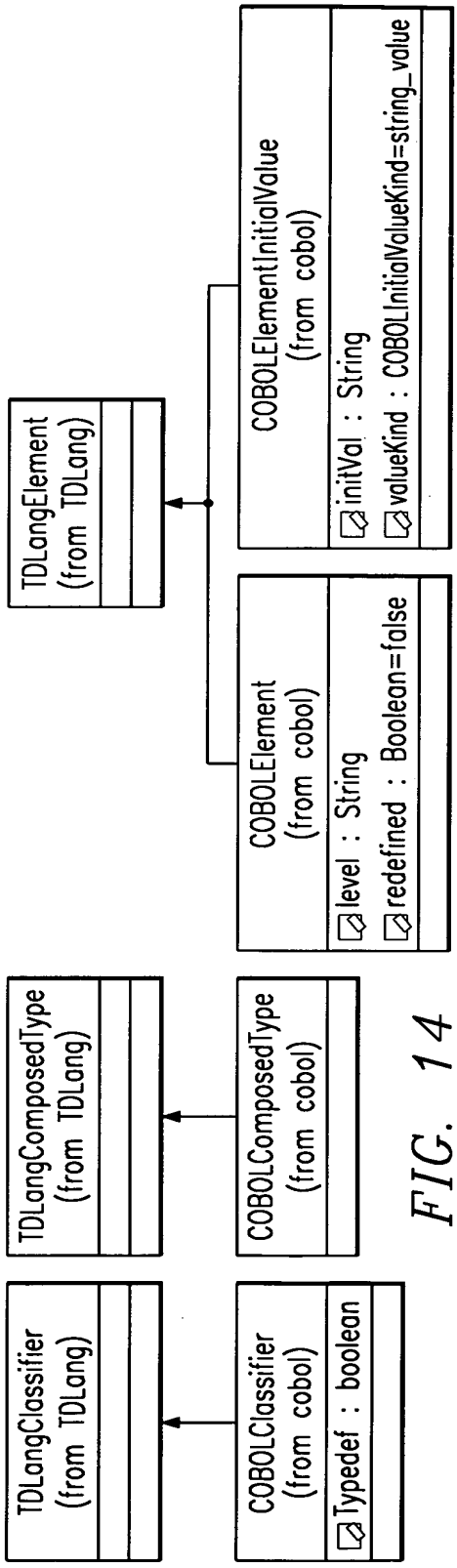

TDLangElement
(from TDLang)
COBOLElementInitialValue
(from cobol)
initVal : String
valueKind : COBOLInitialValueKind=string_value
COBOLElement
(from cobol)
level : String
redefined : Boolean=false
TDLangComposedType
(from TDLang)
COBOLComposedType
(from cobol)
TDLangClassifier
(from TDLang)
COBOLClassifier
(from cobol)
Typedef : boolean

FIG. 14

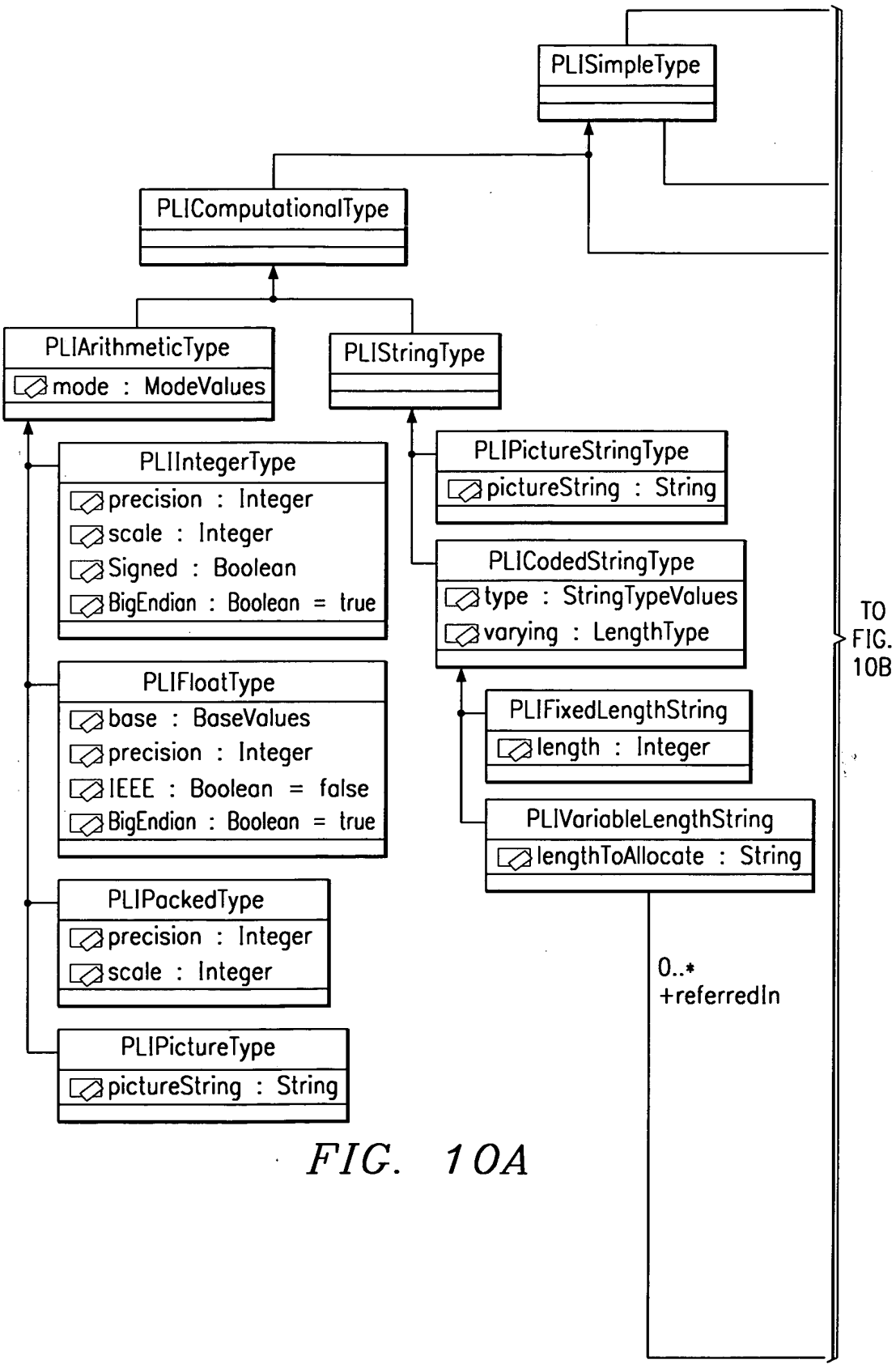
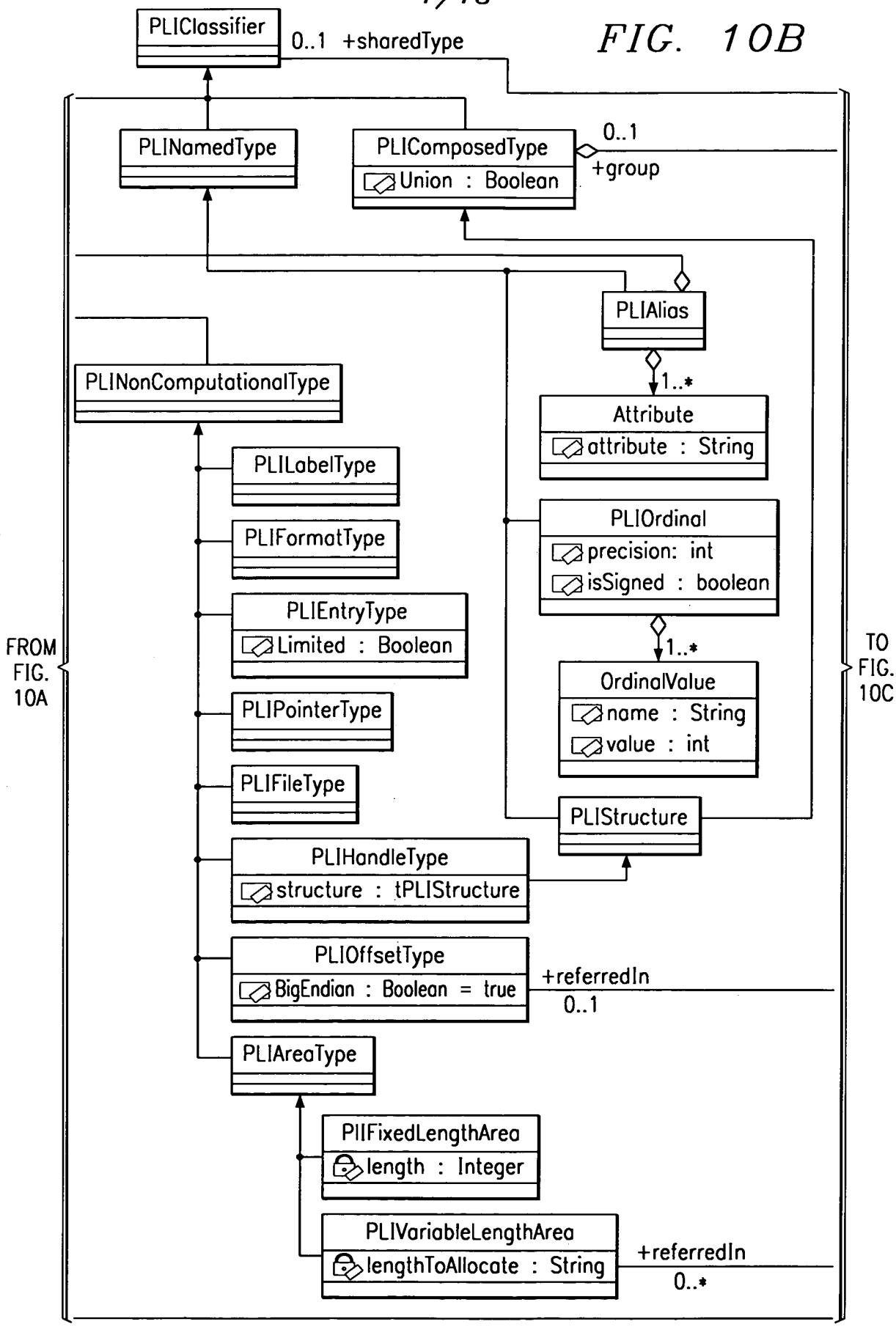

PLISimpleType
PLIComputationalType
PLIArithmeticType
mode : ModeValues
PLIStringType
PLIIntegerType
precision : Integer
scale : Integer
Signed : Boolean
BigEndian : Boolean = true
PLIPictureStringType
pictureString : String
PLICodedStringType
type : StringTypeValues
varying : LengthType
PLIFloatType
base : BaseValues
precision : Integer
IEEE : Boolean = false
BigEndian : Boolean = true
PLIFixedLengthString
length : Integer
PLIVariableLengthString
lengthToAllocate : String
PLIPackedType
precision : Integer
scale : Integer
PLIPictureType
pictureString : String
0..*
+referredIn
TO
FIG.
10B

FIG. 10A

FIG. 10B


PLIClassifier
0..1 +sharedType
PLINamedType
PLIComposedType
Union : Boolean
0..1
+group
PLIAlias
1..*
Attribute
attribute : String
PLINonComputationalType
PLILabelType
PLIFormatType
PLIEntryType
Limited : Boolean
PLIPointerType
PLIFileType
PLIOrdinal
precision: int
isSigned : boolean
1..*
OrdinalValue
name : String
value : int
PLIStructure
PLIHandleType
structure : tPLIStructure
PLIOffsetType
BigEndian : Boolean = true
+referredIn
0..1
PLIAreaType
PLIFixedLengthArea
length : Integer
PLIVariableLengthArea
lengthToAllocate : String
+referredIn
0..*
FROM FIG. 10A
TO FIG. 10C

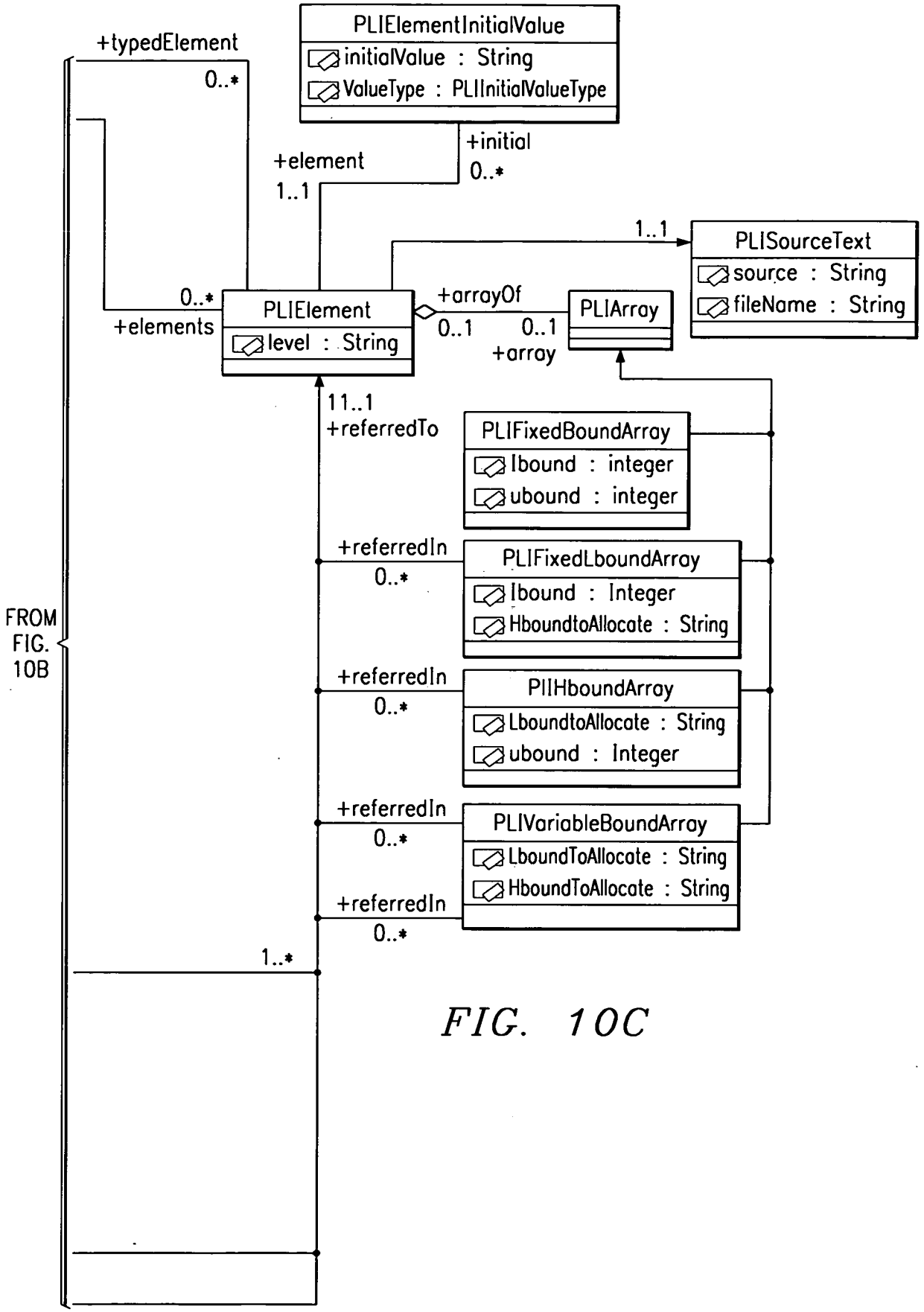

PLIElementInitialValue
initialValue : String
ValueType : PLIInitialValueType
+typedElement
0..*
+initial
0..*
+element
1..1
1..1
PLISourceText
source : String
fileName : String
0..*
+elements
PLIElement
level : String
+arrayOf
0..1
0..1
+array
PLIArray
11..1
+referredTo
PLIFixedBoundArray
lbound : integer
ubound : integer
+referredIn
0..*
PLIFixedLboundArray
lbound : Integer
HboundtoAllocate : String
+referredIn
0..*
PLIHboundArray
LboundtoAllocate : String
ubound : Integer
+referredIn
0..*
PLIVariableBoundArray
LboundToAllocate : String
HboundToAllocate : String
+referredIn
0..*
1..*
FROM
FIG.
10B

FIG. 10C

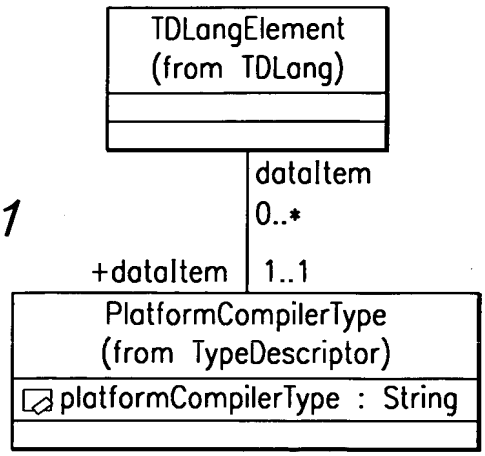
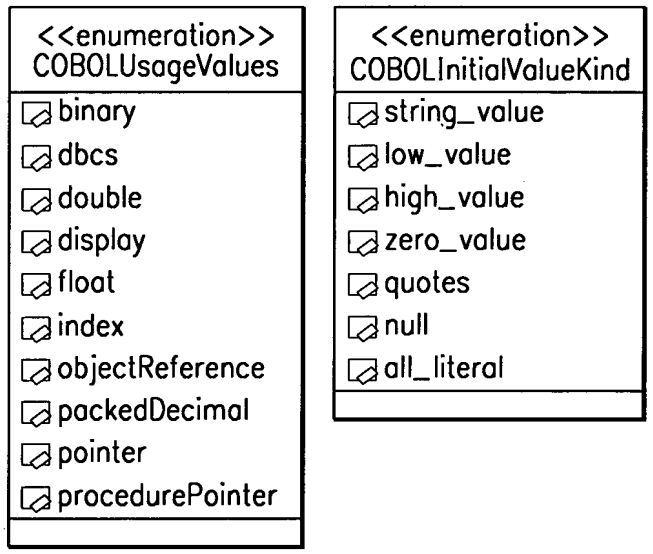


FIG. 11

FIG. 15



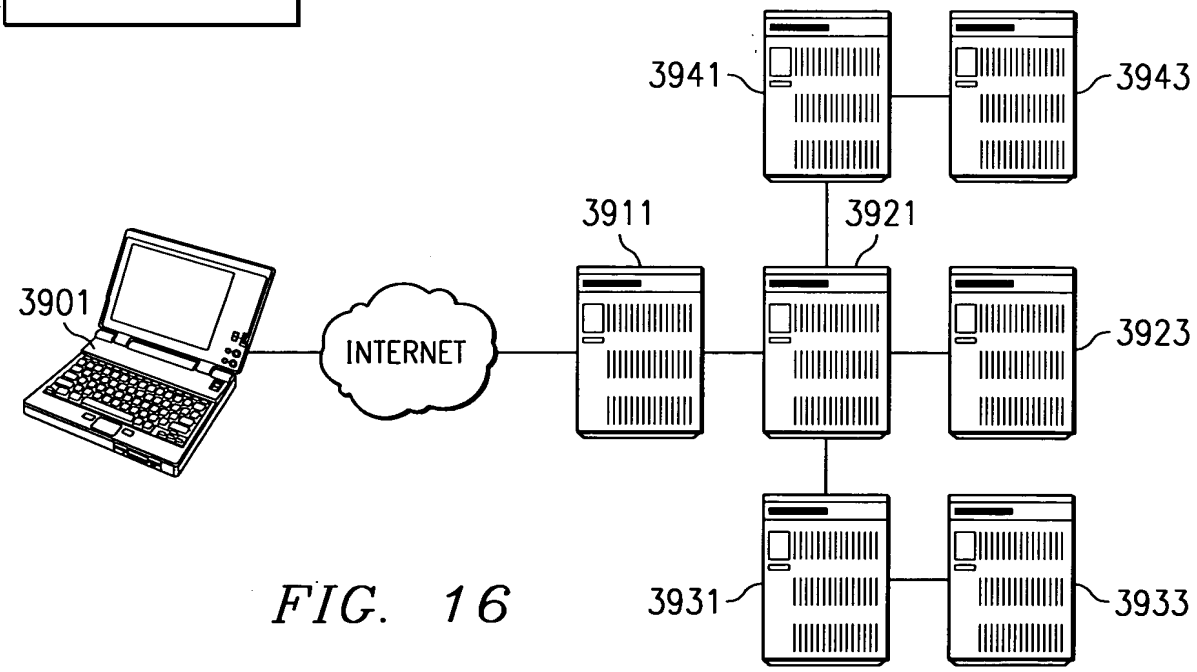


FIG. 16

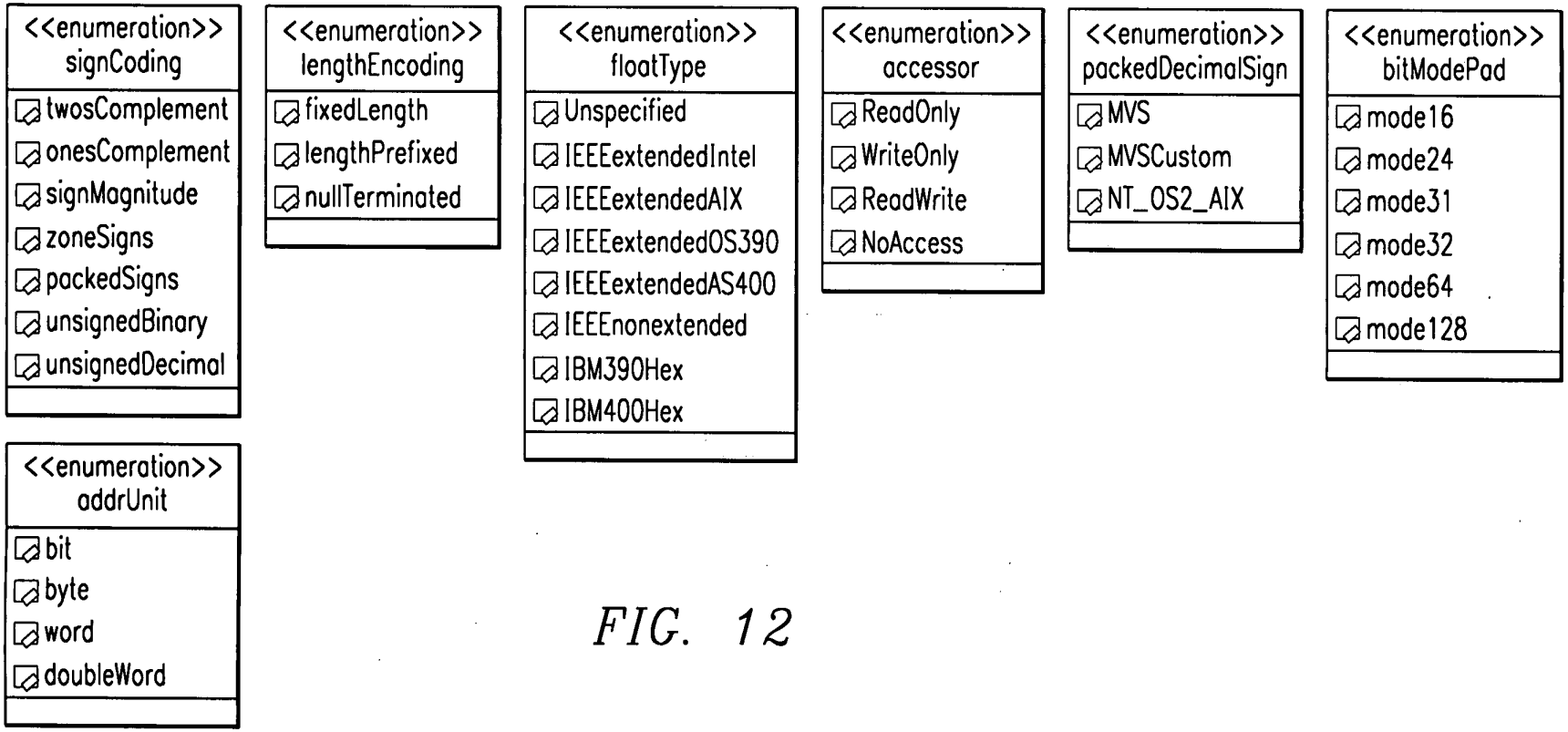

<<enumeration>>
signCoding
twosComplement
onesComplement
signMagnitude
zoneSigns
packedSigns
unsignedBinary
unsignedDecimal
<<enumeration>>
addrUnit
bit
byte
word
doubleWord
<<enumeration>>
lengthEncoding
fixedLength
lengthPrefixed
nullTerminated
<<enumeration>>
floatType
Unspecified
IEEEextendedIntel
IEEEextendedAIX
IEEEextendedOS390
IEEEextendedAS400
IEEEnonextended
IBM390Hex
IBM400Hex
<<enumeration>>
accessor
ReadOnly
WriteOnly
ReadWrite
NoAccess
<<enumeration>>
packedDecimalSign
MVS
MVSCustom
NT_OS2_AIX
<<enumeration>>
bitModePad
mode16
mode24
mode31
mode32
mode64
mode128

FIG. 12

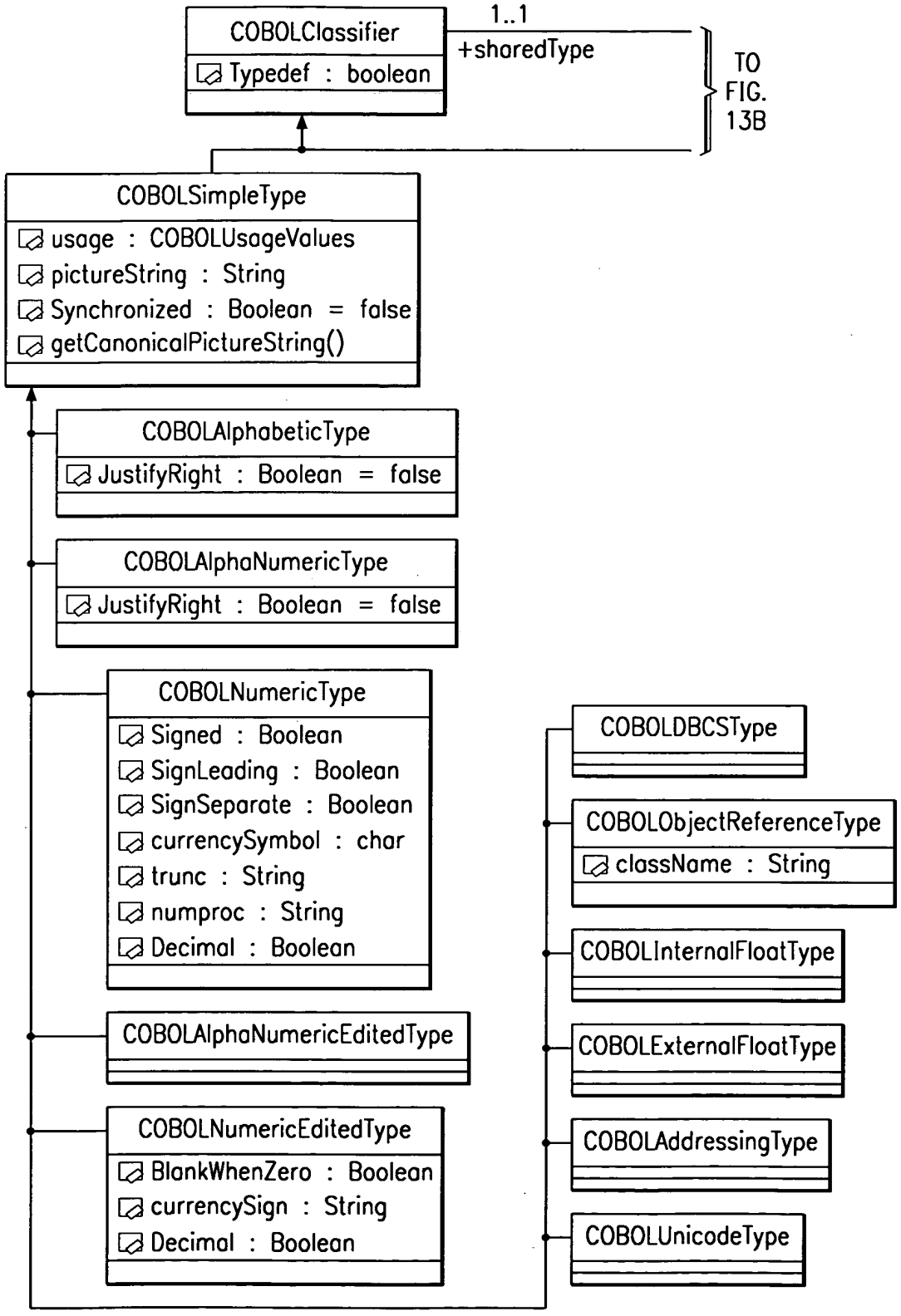

COBOLClassifier
Typedef : boolean
1..1
+sharedType
TO FIG. 13B
COBOLSimpleType
usage : COBOLUsageValues
pictureString : String
Synchronized : Boolean = false
getCanonicalPictureString()
COBOLAlphabeticType
JustifyRight : Boolean = false
COBOLAlphaNumericType
JustifyRight : Boolean = false
COBOLNumericType
Signed : Boolean
SignLeading : Boolean
SignSeparate : Boolean
currencySymbol : char
trunc : String
numproc : String
Decimal : Boolean
COBOLAlphaNumericEditedType
COBOLNumericEditedType
BlankWhenZero : Boolean
currencySign : String
Decimal : Boolean
COBOLDBCSType
COBOLObjectReferenceType
className : String
COBOLInternalFloatType
COBOLExternalFloatType
COBOLAddressingType
COBOLUnicodeType

FIG. 13A

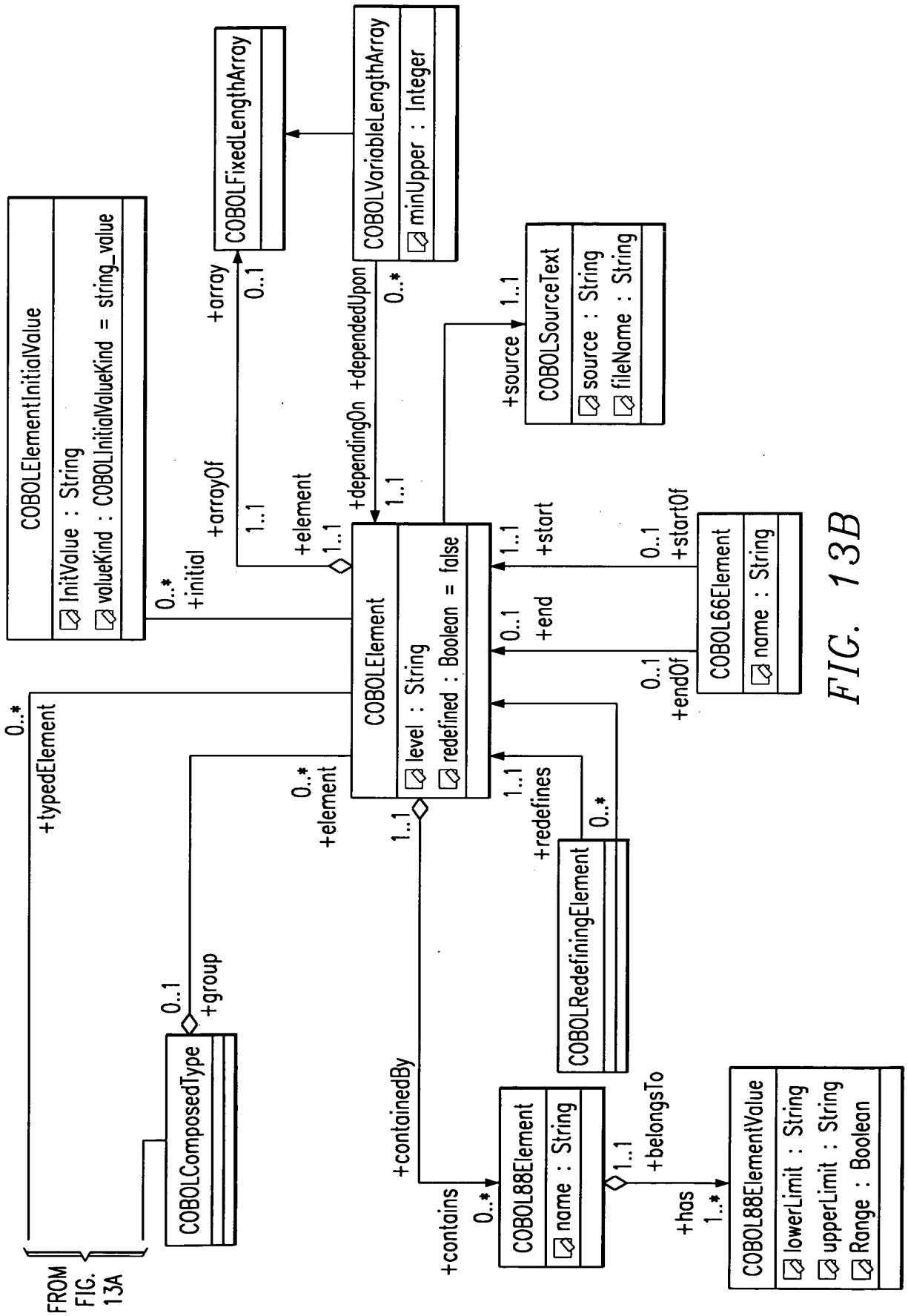

COBOLElementInitialValue
InitValue : String
valueKind : COBOLInitialValueKind = string_value
COBOLFixedLengthArray
COBOLVariableLengthArray
minUpper : Integer
COBOLSourceText
source : String
fileName : String
COBOLElement
level : String
redefined : Boolean = false
COBOL66Element
name : String
COBOLComposedType
COBOLRedefiningElement
COBOL88Element
name : String
COBOL88ElementValue
lowerLimit : String
upperLimit : String
Range : Boolean
+initial
+arrayOf
+array
+element
+dependingOn
+dependedUpon
+source
+start
+end
+startOf
+endOf
+typedElement
+group
+element
+redefines
+containedBy
+contains
+belongsTo
+has
FROM FIG. 13A

FIG. 13B

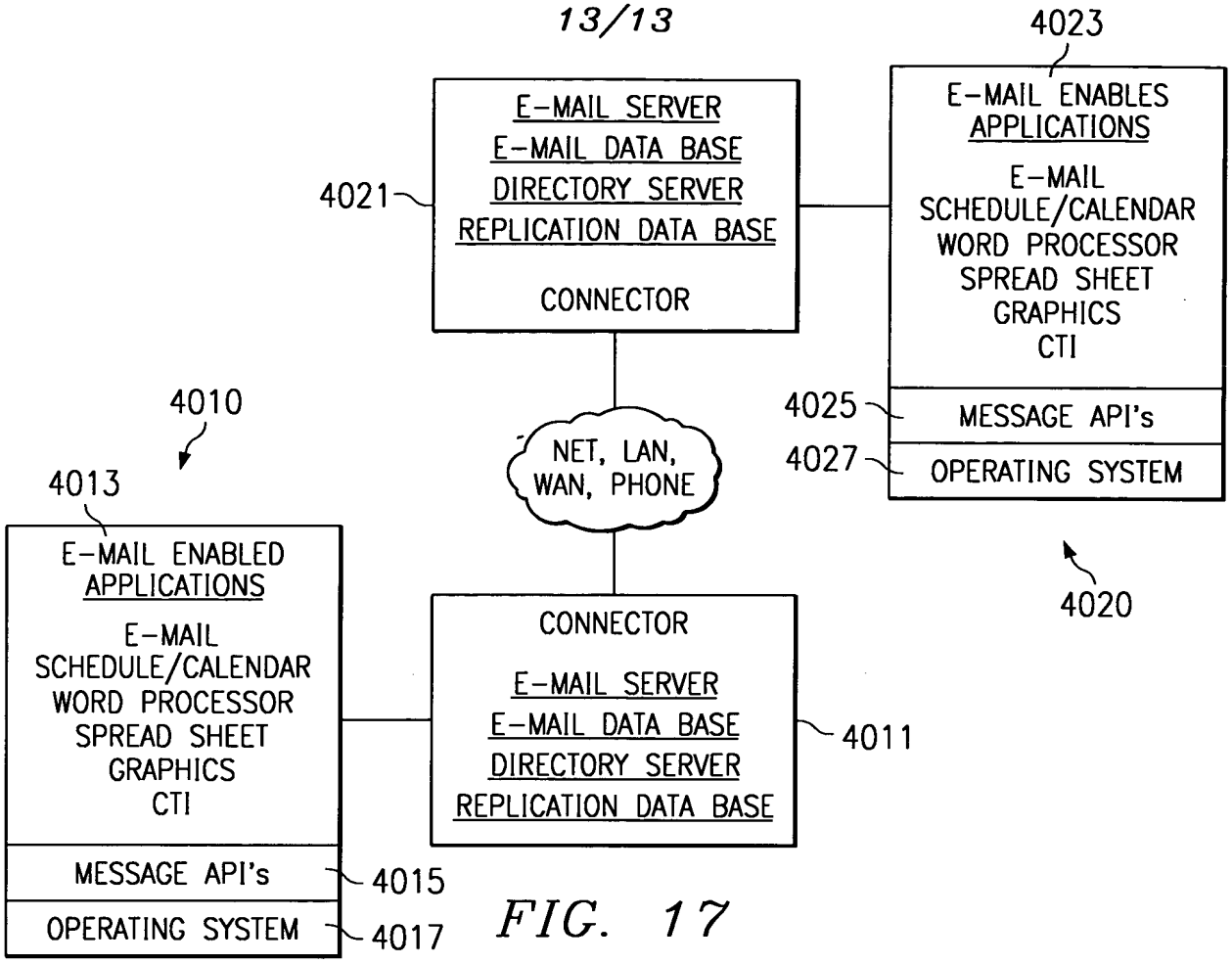

4023
E-MAIL ENABLES APPLICATIONS
E-MAIL
SCHEDULE/CALENDAR
WORD PROCESSOR
SPREAD SHEET
GRAPHICS
CTI
4025
MESSAGE API's
4027
OPERATING SYSTEM
4020
E-MAIL SERVER
E-MAIL DATA BASE
DIRECTORY SERVER
REPLICATION DATA BASE
CONNECTOR
4021
NET, LAN, WAN, PHONE
4010
4013
E-MAIL ENABLED APPLICATIONS
E-MAIL
SCHEDULE/CALENDAR
WORD PROCESSOR
SPREAD SHEET
GRAPHICS
CTI
MESSAGE API's
4015
OPERATING SYSTEM
4017
CONNECTOR
E-MAIL SERVER
E-MAIL DATA BASE
DIRECTORY SERVER
REPLICATION DATA BASE
4011

FIG. 17

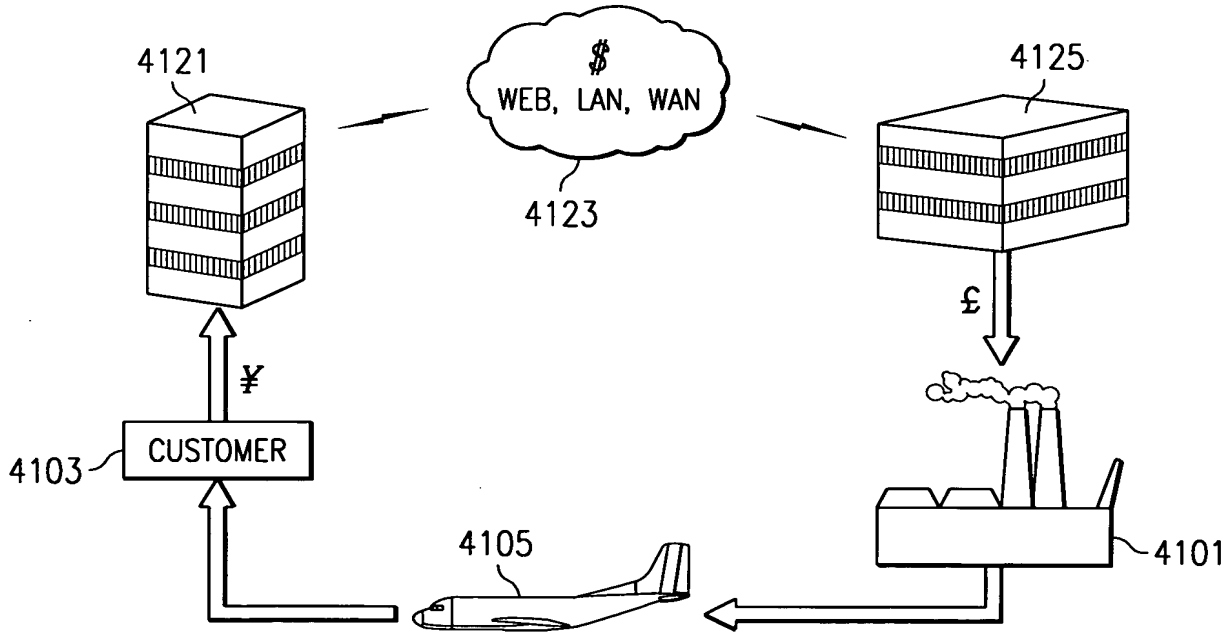

4121
$
WEB, LAN, WAN
4123
4125
£
¥
4103
CUSTOMER
4105
4101

FIG. 18